



Fabrication Procedure for Mount Pad

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Fabrication Procedure

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Abstract

Procedure for fabrication of Mount Pad Laminate and final parts for PST Barrel and forward

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Distribution List

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History of Changes

<i>Rev. No.</i>	<i>Date</i>	<i>Pages</i>	<i>Description of changes</i>
0	01/10/2003	6	Initial Release
1	05/27/2004	6	Adjusted procedure to account for Ply Cutter and Composites Database

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1 Fabrication Procedure for Mount Pad Tool

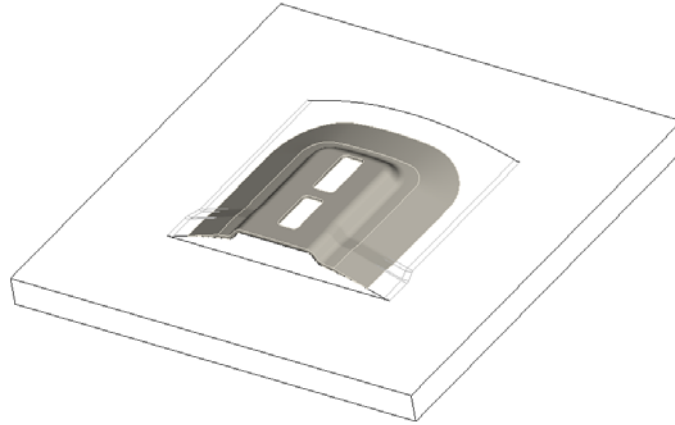


Figure 1 Mount Pad on Tool

1.1 Tool Prep

1.1.1 Repair and Clean

Remove Resin and Tacky Tape residue from previous cure. Buff and remove scratches with Scotch-Brite pad. Clean thoroughly with ethanol and lint free wipes—allow to dry

1.1.2 Apply release

Wipe release on with lint free wipe in thin layer—do not over apply. Allow to air-dry 30min. **Do not wipe with solvents after application—use only dry wipes**

1.2 Part Prep

Defrost Ply Kit of CN60 PW cloth minimum of 3hrs before opening bag (from –20C Freezer), or until up to room temperature to prevent condensation on uncured pre-preg.

On Pre-cut plies, mark centerline on one side of each ply. On Ply 1 mark centerline on “Sticky Side” (darker side prepreg—backing which has more resin on it) On the rest, mark topside. Mark Ply number on both sides using following table to get orientations and ply stack right—note that first ply down with a ‘new’ dimension is a 45 degree ply. With the exception of the first ply, all plies which touch the tool are 45 degree plies. Weigh cut fiber and record in Part Log in Part Database by adding plies to database during the build.

Print out a Part Barcode with number from database and apply to flat tool surface outside of part boundary.

Ply #	Orientation	Approx Dimension	Radius
1	0/90	90 X 115mm	10mm
2	0/90	90 X 115mm	10mm
3	+/- 45	110 X 125mm	20mm
4	+/- 45	110 X 125mm	20mm
5	0/90	110 X 125mm	20mm
6	+/- 45	130 X 135mm	30mm
7	0/90	130 X 135mm	30mm
8	+/- 45	130 X 135mm	30mm
9	+/- 45	150 X 145mm	40mm
10	0/90	150 X 145mm	40mm
11	0/90	150 X 145mm	40mm

Table 1 Ply Definition Table

1.3 Part Lamination

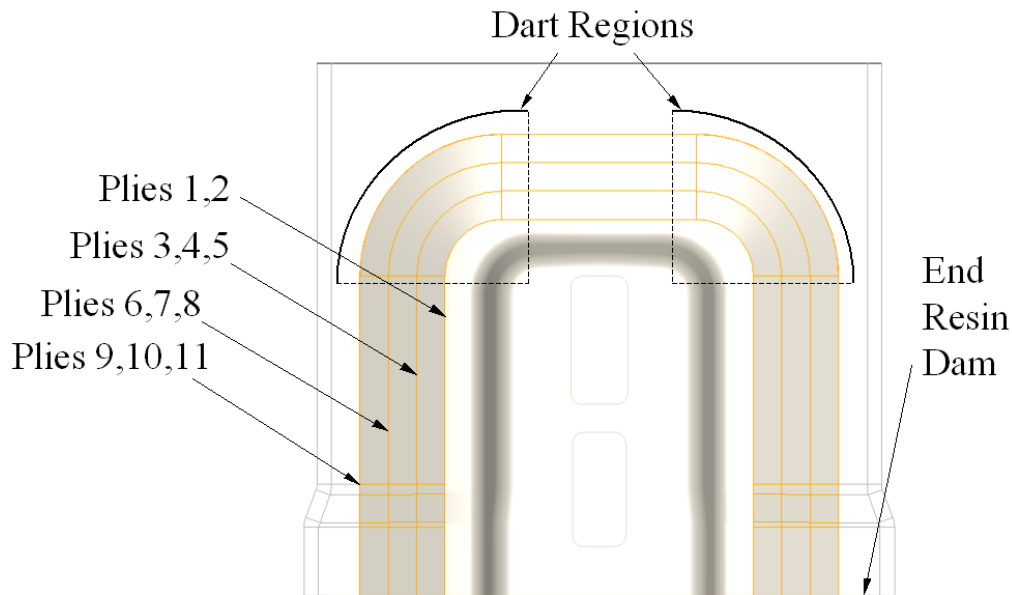


Figure 2 Ply and Tool Designations

1.3.1 Lay-up

Lay-up each ply starting on flattop of tool, being careful to leave a very small gap between the laminate and the resin dam at the end (indicated in figure 2 above). Ply 1 goes down with sticky side on tool. Center by eye, each ply using center mark on ply and marks on tool. Lay crosswise along curve of tool using heat gun and Teflon depressors to stick down plies and work out bridging.

Using heat gun and Teflon depressor, stick down middle tongue of fabric and then the sides, working them (shearing fabric only a little) to close dart gap—**do not overlap fabric in dart**. Close darts as much as possible, but try to keep a clean outer radius on the outer perimeter.

After fabric from all plies of a given size (outer rectangular dimension) lie flat, trim back edges even with tongue of darted fabric in middle. Use Scalpel Handle #2 and curve edge blade, being careful not to damage tooling surface. This may not be needed with the new ply shapes

Repeat for each ply stack

After Layup is finished, and trimmed, count all backings. **Make sure there are two backings per ply** to guarantee that there are no backings trapped in the laminate. If there is remove it and re-apply the plies.

Weigh backing and scrap and record in Database. Calculate pre-cure part mass and record.

1.3.2 Bleed

Apply 1 layers of 3-mil (75micron) Teflon Coated Fiberglass bleeder smoothly over entire laminate surface, darting as with each ply. Extend past part boundary.

Apply 1 layer of A4000R-P1 (perforated) smoothly over entire surface. Extend 1" past part boundary. Tape in place to prevent ply slippage

Place resin dam block at end of part

1.3.3 Bag

Apply tacky tape to tool around flat base.

Place thermocouple up to edge of part over A4000R—tape leads in place outside of part boundary. Put Tacky tape over TC Lead wire—see TC Bag Detail

Apply only **one layer** of Breather (Ultraweave 606) over part surface (breather is used in bleed system for this part, more than one layer will remove too much resin). Gather extra breather near tool vertical dropoffs to help prevent bag bridging except within part boundary.

Make Two Vacuum probe ears from Ippilon—One for Source and one for Probe. Apply these to tacky tape and apply tacky tape over ears.

Bag over part and ears/probes

Tape reinforce Ears and bag over tacky tape

****Alternate:** Wrap tool base in breather (no extra over mount pad), and place entire tool into a pre-fab bag.

1.4 Part Cure

1.4.1 Part Database

Enter part Data into CPC-NT Part Database, Part Serial number should be Part Barcode number from Composite Database.

1.4.2 Cure

Run integrity check for TC and vacuum attachments. Leak spec 5"/min is acceptable.

Resin System is Bryte EX1515. Use cure cycle recipe "Bryte_EX1515\160 pressurize 250 dwell" for Part Cure—this should be automatically entered when parts are added to the "Batch" in CPC-NT

Vacuum pressure is OK if in excess of 50psi differential during cure.

After part has passed these steps, and Autoclave cycle has begun, go to Composite Database and enter each part in run as 'CURED'

1.5 Part Post Processing

1.5.1 Release

Release part from tool and remove resin flash.

Weigh cured part and record in Part Log on Part Datasheet. Calculate resin removed and record.

Transfer Barcode from Tool to Part—place on bag-side of mount pad in taper region.

1.5.2 Trim

Using vacuum chuck machine to Print Number(s) 210081 for quantities indicated.